The OECD Health Project

Health Technologies and Decision Making

Summary in English

Executive Summary

The introduction of new technologies has brought remarkable improvements over the past few decades to the health of the citizens of OECD member countries. There is, however, widespread variation in how such new, as well as existing, technologies are used across OECD countries, indicating that the most effective and efficient technologies may not always be the ones employed. Encouraging the uptake of the most efficient and effective health-care technologies remains a significant policy challenge in many OECD countries.

The work described in this report, carried out with a group of experts drawn from OECD countries, examined how improvements could be made to integrate effective and efficient technologies into health-care systems. Analysis focused on the production of evidence, primarily in the form of health technology assessment[1] (HTA), and the way that such evidence is subsequently used in decision making. The way decisions are made and implemented was also analysed, including examining the range of policy tools used to put decisions into actual practice.

The conclusions presented in this report drew on analysis of a survey of how health technologies are integrated into health systems, focusing on:

- How decisions at the national, regional and hospital levels are made.
- How evidence (particularly HTA-based evidence) is produced and used in decision making.
- How aspects of health-care systems facilitate or impede the implementation of decisions.

[1] HTA has been developed to consider the broader impacts of health technologies and evaluate their benefits and costs. It typically involves: *i)* identifying the policy question, *ii)* systematic retrieval of scientific evidence and analysis, and *iii)* appraisal of evidence, including judgements about the meaning of the evidence. The evidence and its appraisal then inform the decision-making process.

Twelve OECD member countries[2] participated in the survey and respondents included government officials, health technology assessors, health care and hospital administrators, clinicians and researchers. Comparative information was collected on actual decision making processes for five case study technologies: positron emission tomography, hepatitis C genotyping and viral load testing, telemedicine, prostrate cancer screening, and technologies for dealing with stroke patients.

The report considers in depth three of the key challenges that policy makers face when reaching decisions about the use of new technologies. Namely, options for dealing with uncertainty in the evidence base, consideration of the transferability of evaluations between different situations, and analysis of how biomedicines challenge decision makers. Finally, the practicalities of using HTA in three OECD countries are explored.

The production and use of HTA-based evidence

The process of health technology assessment (HTA) is widely regarded as able to deliver succinct, high quality and trusted evidence to decision makers at all levels of the health-care system and many OECD countries are developing and implementing policies to support the production and improvement of the range of approaches and methodologies involved. However, investment in developing the field still tends only to reflect fractions of a percent of total health-care spending and HTA continues to face significant challenges. In particular, although the standard of evidence produced by HTA is generally regarded as high, thus far there is only limited evidence of the effectiveness of HTA in terms of its influence on decision making, on health technology use or on health outcomes.

A range of initiatives are underway in the countries sampled by the survey to improve communication of the results of formal assessment to a broad range of decision makers and stakeholders, such as policy makers, clinicians, industry and patients. In most cases, these efforts are primarily focused on dissemination. Whilst there remains no definitive consensus on what dissemination methods work best, nor whether what works well in one setting will work equally well in another, there is some evidence from the survey that a "portfolio" approach may be more effective than any single approach to disseminating the results of HTA analysis. Significant efforts have been made in some OECD countries to develop a "culture" of evidence based policy and practice by stimulating activities that generate greater demand for HTA, including education programmes targeted at developing decision makers' skills in interpreting and analysing evidence, establishing information infrastructure to make evidence more readily available and developing decision-making processes with a more clearly defined role for HTA.

Health technology assessments are more likely to be used by decision makers if policy instruments are available to act on the assessment, if prior commitments to make use of technology assessments are in place, and if the technology assessment methodology used is regarded as "appropriate". The OECD survey results suggest that technology assessment largely needs to be tailor-made for the characteristics of individual health systems, including where decisions about uptake and diffusion of technology get made as well as, in some cases, for the particular technologies being assessed. In general,

[2] Australia, Austria, Canada, France, Germany, Ireland, Japan, Mexico, the Netherlands, Norway, Spain and Switzerland.

HTA needs to be linked more comprehensively with innovation and other aspects of policy making.

For some technologies, the pace of development tests the capacity of HTA producers to keep assessments current. HTA producers generally only occasionally undertake assessment updates to keep abreast of research and development, citing lack of resources as the main barrier. Where they have been done, more forward looking assessments have had some impact by highlighting areas of uncertainty, suggesting areas for further research, and outlining potential areas for further improvement of technologies: in some cases these kinds of assessments have helped define producer-purchaser agreements for specific technologies. Efforts have been made by some health service providers to access more timely information for decision making through the use of foresight-type exercises (such as horizon-scanning) to identify possible future technologies, although as yet there is little evidence of the actual impact of such approaches on subsequent decision making. Despite these challenges to health technology assessment, the OECD survey found that there is widespread support from decision makers for the continuing provision of HTA. This is borne out by several recent reviews of HTA in, for example, the United Kingdom and Denmark.

The decision-making process

Access to high-quality evidence is necessary but not sufficient to ensure rational uptake and diffusion of health technologies. It is increasingly recognised that the rational use of evidence depends, in large part, on the decision making process and on the institutional organisational, political and cultural dynamics of health care systems.

For each of the case-study technologies examined, decisions about the uptake and diffusion of health technologies take place at multiple levels of the health care system. Where clear decision-making structures existed, the impact of HTA evidence on decisions seemed to improve, perhaps because HTA practitioners were better able to direct their assessments to pre-defined target groups.

There is evidence of growing use of "conditional approvals" for the funding/reimbursement of new technologies by health service providers. These can provide opportunities to grant access to technologies where this might not otherwise be the case, while collecting further data to overcome uncertainty and minimise potential risks. However, for conditional approvals to be effective, there needs to be clarity between stakeholders about what data will be collected by whom as well as how and when it will be used to confirm final approval or otherwise. There is some concern that too liberal use of conditional approvals could inappropriately slow access to new technologies. This could potentially undermine the existing system and the impact of conditional approvals thus should be monitored.

In general, decisions about health technologies are more likely to be accepted by a broad range of stakeholders, such as health professionals, industry and patient representatives, if the decision making process is regarded as transparent and based on evidence, and if it includes an appeals mechanism. Stakeholder acceptance of decisions seems to be a key determinant of whether decisions are actually put into practice within health systems.

Better dialogue early on in the assessment process is required between the producers and users of HTA to achieve better alignment of HTA content, decision makers' needs and policy.

Implementing decisions

The success or otherwise of HTA needs to be addressed primarily in terms of the downstream impact on health outcomes and the performance of health systems. Certainly, many OECD countries are gearing their health systems towards an era in health policy that places stronger emphasises on measurement, accountability, value for money and evidence-based policies and practices. The challenge for many policy makers is to develop policy tools that aim to achieve multiple health system goals simultaneously and particularly to develop methodologies that elaborate how evidence-based decisions might translate into direct impacts on health outcomes.

Currently, increasing attention seems to be given to presenting evidence-based decisions in such a way that they are more likely to be given effect in actual practice. Three main factors seem to be involved. First, the process by which results are presented and disseminated. There is a significant heterogeneity here, though the OECD survey suggested that the development of clinical guidelines or recommendations and the development of specific health programmes are the most common approaches used (at least in the countries sampled).

Second, there appears to be growing understanding that the institutional and financial aspects of the health system have a crucial influence on whether decisions will be successfully implemented. Additional funding and flexibility between budgets were important facilitators in implementing decisions. Health system characteristics, including provider payment mechanisms, can create strong (dis)incentives to efficient decision making, leading to potential under use of cost-effective technologies.

And third, the level of stakeholder trust in the evidence, and in the systems that use it, emerges as a key determining factor. One means to help engender such trust appears to be the principle of risk-sharing. A number of health service providers in OECD countries have started to use novel techniques, such as agreements with technology providers and industry, to implement decisions that aim to capture the benefits of new technologies, help overcome uncertainties and recognise the value of true innovation, within the constraints of overall health system resources. These techniques require more rigorous evaluation but may offer greater promise to deliver on the multiple health system objectives that many OECD countries are aiming for.

Decision making under uncertainty

Uncertainty remains pervasive in decision making about new health technologies yet decisions nevertheless have to be taken, since no decision, or a severely delayed decision, is effectively a decision not to supply and/or reimburse. Two main strategies for managing uncertainty seem to be in use. First, creating closer links between technical experts and policy makers and, second, applying risk-amelioration strategies.

For decisions that occur at national or state-wide levels, the problems of applying technical information to policy in a considered and policy-relevant way can be reduced if

there are formal linkages between users and producers of HTA. Formal HTA liaison or management infrastructure within ministries can foster knowledge and expertise within the administrative arms of governments. Such expertise can help administrators to recognize uncertainty, avoid reliance on simplistic solutions, and develop policy measures that might deal with uncertainty more effectively.

As already noted, a number of examples exist of risk-sharing agreements between industry and governments or other health service providers to help deal with uncertainty. These include price-volume agreements and/or commitments to gathering further data. Such agreements need to have clearly defined parameters understood by both parties, with clear end points and appropriate opportunities for review.

Transferability of economic evidence

Decision makers often face difficulties in determining whether the results of economic evaluations, which may be carried out elsewhere, are relevant to their own local circumstances. This is partly due to the frequent lack of transparency in the reporting of such evaluations, but even when the knowledge base concerning a particular clinical intervention is robust, the extent to which specific evidence, rather than evaluations, can best be taken account of in decisions may depend on local conditions.

Four main issues arise. First, there can be significant lags between technological developments and health-care evaluations. To some extent these may be ameliorated by risk-sharing agreements but these may be insufficient in themselves. There is therefore a need to strengthen the analytical enterprise for evaluation, perhaps through new public and private partnerships that enable the costs of health evaluations to be shared.

Second, equity and distributive justice considerations need to be taken account of. These may vary according to the technology or indication in question as well as according to the prevailing local ethical or social policy environment. Including wider stakeholders (patients, health-care providers and public representatives) can help bring wider perspectives to the appraisal and decision-making process.

Third, there remains uncertainty over the extent to which evidence can be transferred from setting to setting. There seems to be general recognition that appraisal decisions are generally setting-specific but a lack of transparency in reporting means that it is often difficult to assess the relevance of economic evaluations to their local setting, or to extrapolate the results. The development of clear shared reporting frameworks could ease this situation.

And finally, there is little evidence so far that economic evaluations do well in determining which subgroups of potential patient populations might benefit most from an intervention. This will become a bigger challenge as pharmacogenetics-based products come online.

Biotechnology and decision making

Biotechnology is seen as being capable of providing significant positive change in delivering better health. However, a number of factors about the technology bring particular challenges to the way economic evidence currently is generated and used in

decision making. These relate mainly to speed of development of biotechnology, investment risks and returns, potential high cost and high effectiveness, and ethical as well as public perception considerations.

Decision makers seem likely increasingly to require more evidence on all aspects of medical innovations, not just the clinical and economic effect but also ethical, social and macroeconomic characteristics, particularly as new health-related biotechnologies come on stream. The question is whether HTA can or should adapt its methodologies to capture these issues, or whether such evidence should come from other sources.

More empirical work is required to open the "black box" of decision making to see better how policy makers use the various tools and evidence available to them. Some methodological refinement of HTA is required, for example in how to use pharmacogenetic data, whereas other issues, integration of ethical considerations, for example, may more appropriately fall outside HTA.

There is thus a need to explore possible policy frameworks within which such broader issues can be addressed. The absence of a clear policy framework to deliver much needed information to decision makers can create significant uncertainty for innovators. The development of such a framework focused on reduction of risk for innovators as well as the integration of the broader policy considerations in decision making on biotechnologies seems necessary if the potential health and economic benefits of the technology are to be maximised. The lessons learned from such an exercise might be applicable also to other technologies that exhibit similar complex characteristics.

New biomedical advances have thrown into sharp relief the need for a better dialogue over the right questions to ask about technologies, and the right mechanisms – technical and political – for answering them. This in turn highlights the need for more appropriate training and development for assessors and decision makers and much closer links with technology innovators.

National experiences with HTA

The use of HTA in decision making requires access to trusted evidence that is relevant to the decision maker's needs. Experiences from three OECD countries highlight how this challenge is being addressed within the context of the organisational and institutional frameworks of their respective health care systems.

In **Australia,** the production an use of HTA at the federal level have developed to meet the needs of two health care financing programmes covering pharmaceuticals and privately provided medical services. This has resulted in HTA activities that are focused on policy makers' requirements. However, HTA has been more limited in terms of its influence on clinical practice and areas beyond the reach of the two federal programmes. Recent efforts have concentrated on delivering HTA to a broader set of decision making processes.

In **Canada**, HTA activities have devolved along provincial lines and have been coordinated through the Canadian Coordinating Office of HTA (CCOHTA). Recent efforts have focused on developing a comprehensive HTA strategy that considers the impact of technologies and maximizes their effectiveness, as well as increasing the

capacity and utility of HTA. National efforts are underway to recognise and promote health technology assessment as a valuable and necessary tool in health decisions, and to invest in coordination and collaboration within the country, which is seen as essential to ensuring more efficient production of HTA as well as its use in decision making.

In **Mexico**'s complex health system, co-ordinating HTA activities and facilitating their use in decision making remains a major undertaking although recent efforts have shown promise. To promote the use of HTA, the Centre for Technological Excellence was recently established to develop national policies for HTA. Meanwhile, the Mexican Institute of Social Security-IMSS (the main public body responsible for providing health care delivery to almost 50 million Mexicans) is in the process of developing mechanisms to facilitate the use of HTA at all levels of health care decision making. Work on the effective integration and co-ordination of HTA in decision making has only recently commenced but has already seen some success. The challenge ahead for Mexico is for HTA to reach a wider audience of decision makers.

Experiences from Australia, Canada and Mexico demonstrate that to be useful to decision makers, HTA must be tailored to individual characteristics of the health-care system, including consideration of where decisions about uptake and diffusion of technologies get made. Greater collaboration between the producers and users of HTA – and with technology providers, is seen as a key success factor in integrating HTA into the health care system in a way that delivers better health system performance and health outcomes.

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